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(56) Documents Cited

GB 1217826 A

US 4442943 A

US 4297961 A

(58) Field of Search

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HAF

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ONLINE DATABASES: WPI

(54) Floating heavy lift crane arrangement

(57) In order to reduce the costs connected with a seagoing heavy lift crane, a supply vessel 1 is combined with a heavy lift crane 3 which is constructed with a semi-submerged foundation frame 4. The supply vessel 1 may be used as such when it is not being used in the combination. The frame has legs or pedestals 6 between which the vessel 1 is coupled.

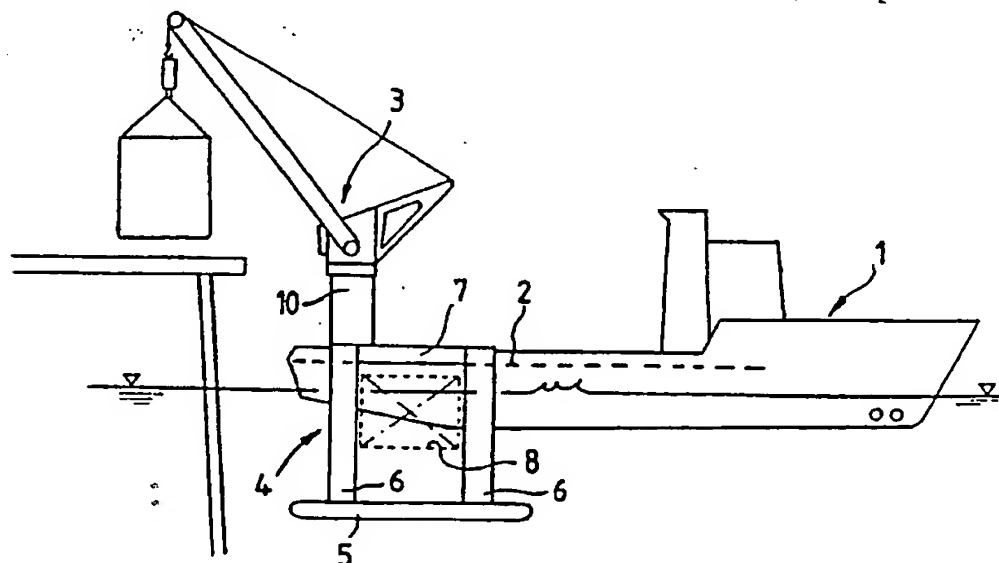


FIG.1

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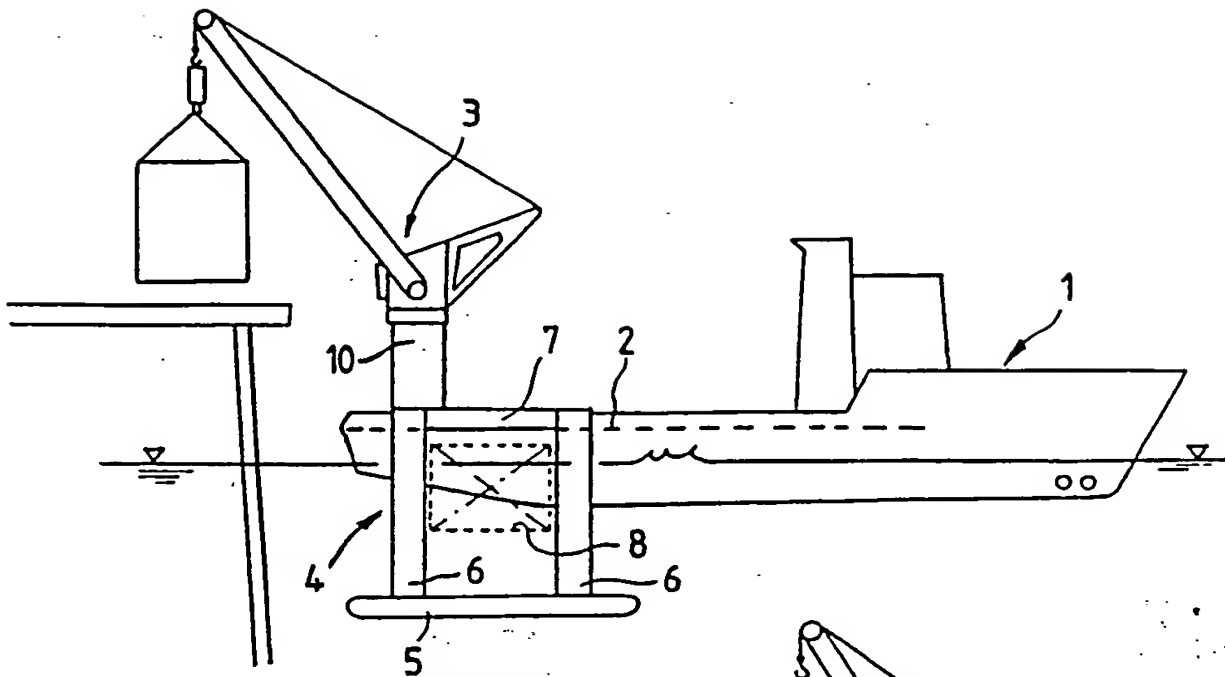


FIG. 1

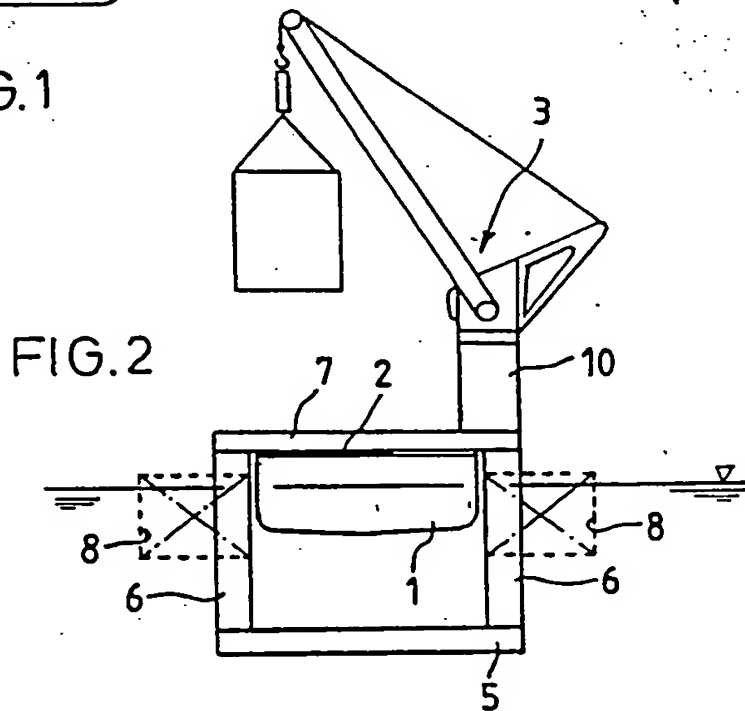


FIG. 2

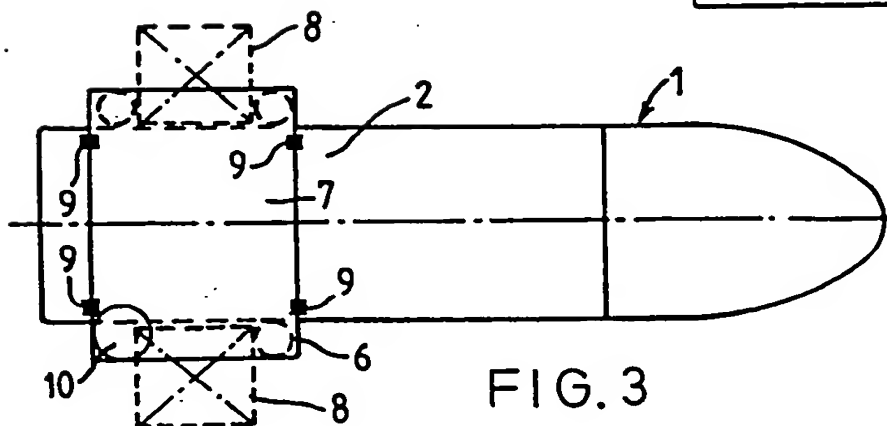


FIG. 3

Heavy Lift Crane and Heavy Lift
Crane Arrangement

The invention relates to a crane and crane arrangement for heavy duty lifting (for example, 250 tons).

Floating cranes for heavy lifting often lie inoperative for long periods of time. The day rates for the use of such cranes are therefore high.

The invention provides a crane combinable with a supply vessel, whereby the day rate can be reduced considerably.

The present invention provides a heavy lift crane arrangement as set forth in Claim 1 or 8, preferred and/or optional features being set forth in Claims 2 to 7. The present invention also provides a heavy lift crane as set forth in Claim 8 or 11, preferred features being set forth in Claims 9 to 10.

The crane itself may have a foundation frame designed like a kind of overturned stool. A relatively large ballast surface may be submerged in the water. Upward from the ballast surface project upright means, for example legs or pedestals, which may be connected together above the surface of the water where they can be brought into contact position against the aft deck of a supply vessel. When needed, the crane may be picked up by the supply vessel and brought out to the work site - such as, for example, an offshore platform - where there is a need for heavy lifting (modules, etc.). A supply vessel will have sufficient engine power to be able to take with it the bulky and difficult-to-handle crane structure.

The ballast, which in use is situated far down in the water, provides the necessary or desired stabilization during the crane lifting. Large auxiliary pontoons on the port and starboard sides may be provided to

contribute to buoyancy when the crane is laid up.

The crane should be such that, when in use, the ballast body is located below the hull and propellers of the supply ship.

When the crane is not in use, it can be disconnected from the supply vessel which can therefore be used simply as a supply vessel. The crane and its frame do not need to be constructed with a seaworthy hull and propulsion machinery.

The invention will now be explained in further detail by way of example only with reference to the drawings, which are purely schematic and wherein:

Fig. 1 is a horizontal projection of a heavy lift crane arrangement according to the invention,

Fig. 2 is the arrangement in Fig. 1 viewed from the aft end of the vessel, and

Fig. 3 is a plan view of the arrangement in Figs. 1 and 2.

On the figures is shown a typical supply vessel 1 with a work/loading deck 2. A heavy lift crane 3 has a semi-submerged frame 4, constructed primarily of a horizontal slab-formed ballast body 5, from which four legs 6 project upward. The legs are attached together at the top by a transverse connecting member 7, designed to rest upon deck 2. In the port and starboard areas between legs 6 there is space for auxiliary pontoons 8, as shown, which provide buoyancy when the crane is laid up. These are drawn in with broken lines to indicate that they are not present during the actual heavy duty lifting, but are instead used as auxiliary pontoons when the crane is in port (laid up).

The advantage of the invention is that supply vessel 1 can function as a crane vessel when necessary (as indicated on the figures), and can otherwise be used as a supply vessel. The situation illustrated in the figures is one where crane 3, the pedestal of which is indicated by 10, is used for heavy duty lifting in connection with an offshore platform, only partially indicated in the figures.

The crane and its frame may be constructed more simply and less expensively, without a seaworthy hull and propulsion machinery. The auxiliary pontoons 8 are used when the crane is in port and are therefore, as mentioned above, shown by broken lines, to indicate their placement when they are in use.

The suggested anchorage points for the heavy duty crane on the vessel deck are indicated by numeral 9.

The present invention has been described above by way of example only, and modifications may be made within the invention.

Claims

1. A heavy lift crane arrangement, comprising a heavy lift crane for floating in water, designed with a foundation frame having a ballast body which is submergeable in the water and from which uprights project upward, and a vessel which can be moved in between the uprights and coupled to the frame.
2. The heavy lift crane arrangement of Claim 1, wherein the uprights comprise legs or pedestals.
3. A heavy lift crane arrangement according to Claim 1 or 2, further comprising detachable port and starboard auxiliary pontoons.
4. A heavy lift crane arrangement according to Claim 1, 2 or 3, wherein the vessel is a supply vessel.
5. A heavy lift crane arrangement according to any one of the preceding claims, wherein the ballast body is in the form of a horizontal slab-like body.
6. A heavy lift crane arrangement substantially as herein described with reference to the accompanying drawings.
7. A heavy lift crane for floating in water, having a ballast body which is submergeable in water and from which upright means project upwards, the upright means being designed so that a vessel may be engaged and coupled therewith.
8. The heavy lift crane of Claim 7, wherein the upright means comprise a number of legs or pedestals between which a vessel may be engaged.
9. The heavy lift crane of Claim 7 or 8, further

comprising detachable port and starboard auxiliary pontoons.

10. The heavy lift crane of Claim 7, 8 or 9, wherein the ballast body is in the form of a horizontal slab-like body.

11. A heavy lift crane substantially as herein described with reference to the accompanying drawings.

Relevant Technical Fields

(i) UK Cl (Ed.M) B8H (HAE, HAF) B7A (AAQ,AAZ) B8E (E19)

(ii) Int Cl (Ed.5) B66C 23/52, 23/53

Databases (see below)

(i) UK Patent Office collections of GB, EP, WO and US patent specifications.

(ii) ONLINE DATABASE WPI

Search Examiner
D MCMUNN

Date of completion of Search
26 APRIL 1994

Documents considered relevant following a search in respect of Claims :-
1-11

Categories of documents

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| <p>X: Document indicating lack of novelty or of inventive step.</p> <p>Y: Document indicating lack of inventive step if combined with one or more other documents of the same category.</p> <p>A: Document indicating technological background and/or state of the art.</p> | <p>P: Document published on or after the declared priority date but before the filing date of the present application.</p> <p>E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.</p> <p>&: Member of the same patent family; corresponding document.</p> |
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Category	Identity of document and relevant passages		Relevant to claim(s)
X	GB 1217826	(N V) see pontoon 1	1
X	US 4442943	(TRIPLETT) See particularly lines 54 to 55 column 4	7
X	US 4297961	(JOHNSON) see coupling uprights 40	7